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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/720,742	11/24/2003	Lawrence W. Yonge III	04838-077001	2741

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EXAMINER

PATEL, CHIRAG R

ART UNIT PAPER NUMBER

2141

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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/720,742	YONGE ET AL.	
	Examiner	Art Unit	
	Chirag R. Patel	2141	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 24 November 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-56 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-56 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 13, 22 and 30 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

As per claim 13, it is unclear to the meaning of "greater".

As per claim 22, it is unclear to the meaning of "substantially".

As per claim 30, it is unclear to the meaning of "corresponding to other than an integral number of sub-frames"

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claim 1-13, 17-36, and 41-56 are rejected under 35 U.S.C. 102(b) as being anticipated by Yi et al. (US 2002/0001314).

As per claims 1, Yi et al. discloses a method of operating in a network in which a plurality of stations communicate over a shared medium, comprising

providing a physical layer for handling physical communication over the shared medium; ([0025], Figure 4)

providing a high level layer that receives data from the station and supplies high level data units for transmission over the medium; ([0025], Figure 4)

providing a MAC layer that receives the high level data units from the high level layer and supplies low level data units to the physical layer; at the MAC layer, ([0025], Figure 4)

encapsulating content from a plurality of the high level data units; ([0029] lines 3-4)

dividing the encapsulated content into a plurality of pieces with each piece capable of being independently retransmitted; and ([0029] line 1-9, Figure 4)

supplying low level data units containing one or more of the plurality of pieces. ([0029] lines 1-9)

As per claim 2, Yi et al. discloses the method of claim 1 wherein at least some information common to the encapsulated high level data units is not repeated for each high level data unit encapsulated in a low level data unit. ([0029] lines 1-9, Figure 4)

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As per claim 3, Yi et al. discloses the method of claim 2 wherein the information common to the encapsulated high level data units comprises destination and source addresses. ([0026] lines 13-23) Destination and source address are inherent to the PDU in order to send the PDU to the destination and send an acknowledgement signal to an originating system.

As per claim 4, Yi et al. discloses the method of claim 2 wherein the high level data units each comprise a payload, and encapsulating comprises forming a queue comprising the payloads from a succession of high level data. ([0026])

As per claim 5, Yi et al. discloses the method of claim 4 wherein the queue comprises a succession of sub-frames, each sub-frame comprising a header and a plurality of payloads. ([0026])

As per claim 6, Yi et al. discloses the method of claim 5 wherein each sub-frame is divided into the plurality of pieces capable of being independently retransmitted. ([0026])

As per claim 7, Yi et al. discloses The method of claim 6 wherein division of a sub-frame into the plurality of pieces comprises dividing the sub-frame into a plurality of sub-blocks, and forming at least some pieces from a plurality of sub-blocks. ([0025], [0029], Figure 4)

As per claim 8, Yi et al. discloses the method of claim 7 wherein each piece constitutes a segment that is transmitted as a physical layer block. ([0029], Figure 4)

As per claim 9, Yi et al. discloses the method of claim 1 further comprising parity pieces derived from other pieces and capable of being used at a destination to recover one or more lost pieces at the destination without having to retransmit the lost pieces. ([0029] lines 15-20, Figure 4)

As per claim 10, Yi et al. discloses the method of claim 9 wherein each piece is transmitted as a physical layer block, and the parity pieces are also transmitted as parity physical layer blocks. ([0029], Figure 4)

As per claim 11, Yi et al. discloses the method of claim 10 wherein the physical layer blocks are encoded using forward error correction. ([0029] lines 15-20, Figure 4)

As per claim 12, Yi et al. discloses the method of claim 1 wherein some of the pieces making up a low level data unit constitute retransmitted pieces that failed to be correctly transmitted in an earlier attempt. ([0031])

As per claim 13, Yi et al. discloses the method of claim 12 wherein at least some retransmitted pieces are transmitted with greater forward error correction. ([0031])

As per claim 17, Yi et al. discloses the method of claim 5 further comprising an integrity check value associated with each sub-frame or with a plurality of sub-frames.

(Figure 4, [0029] lines 15-20)

As per claim 18, Yi et al. discloses the method of claim 5 wherein each of the plurality of payloads in a sub-frame have identical length. ([0027])

As per claim 19, Yi et al. discloses the method of claim 5 wherein each sub-frame further comprises MAC management information. ([0029], Figure 4)

As per claim 20, Yi et al. discloses the method of claim 4 wherein the MAC layer has the capability of transmitting data in a plurality of sessions within a regularly-repeated contention free interval, wherein a station to which data is transmitted is identified by a destination address and a station from which data is transmitted is identified by a source address, and wherein the queue contains payloads for the same session, same source address, and same destination address. ([0026], [0029], Figure 4)

As per claim 21, Yi et al. discloses the method of claim 5 wherein the MAC layer has the capability of transmitting data in a plurality of sessions within a regularly-repeated contention free interval, wherein a station to which data is transmitted is

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identified by a destination address and a station from which data is transmitted is identified by a source address, and wherein the queue contains sub-frames for the same session, same source address, and same destination address. ([0026], [0029], Figure 4)

As per claim 22, Yi et al. discloses the method of claim 20 or 21 wherein the sessions are transmitted in a substantially contention-free manner. ([0029])

As per claim 23, Yi et al. discloses the method of claim 22 wherein the sessions are transmitted within time slots of a regularly-repeated contention-free interval. ([0027], [0029])

As per claim 24, Yi et al. discloses the method of claim 20 or 21 wherein a stream identifier (e.g., MSID) is used to associate content of a queue with a particular session. ([0027], Figures 2, 3)

As per claim 25, Yi et al. discloses the method of claim 24 wherein the stream identifier is also used to associate content of a queue with a priority level for contention-based transmission over the medium. ([0027], Figures 2, 3)

As per claim 26, Yi et al. discloses the method of claim 24 wherein there are a plurality of queues, each containing payloads having a unique combination of stream

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identifier, source address, and destination address. ([0026] lines 13-23), [0027], Figures 2, 3) Destination and source address are inherent to the PDU in order to send the PDU to the destination and send an acknowledgement signal to an originating system.

As per claim 27, Yi et al. discloses the method of claim 26 wherein each queue contains a payload having a unique combination of stream identifier, source address, destination address, and type of high level layer. ([0026] lines 13-23), [0027], Figures 2, 3) Destination and source address are inherent to the PDU in order to send the PDU to the destination and send an acknowledgement signal to an originating system.

As per claim 28, Yi et al. discloses the method of claim 5 wherein the queue is divided into a plurality of sub-blocks, wherein a plurality of sub-blocks are grouped to form a segment, with a segment crossing sub-frame boundaries in the queue, wherein a segment constitutes one of the pieces. ([0026])

As per claim 29, Yi et al. discloses the method of claim 28 wherein each sub-block is shorter than a sub-frame. ([0027])

As per claim 30, Yi et al. discloses the method of claim 8 or 28 wherein at least some segments contain a number of sub-blocks corresponding to other than an integral number of sub-frames. ([0026])

As per claim 31, Yi et al. discloses the method of claim 28 wherein the sub-blocks are of equal length. ([0030], Figure 5 and 6)

As per claim 32, Yi et al. discloses The method of claim 28 wherein the sub-blocks have an associated sequential numbering adapted for use at the receiving station for re-establishing the correct sequential order of the sub-blocks. ([0027])

As per claim 33, Yi et al. discloses the method of claim 32 wherein the sub-blocks have a predetermined size, which combined with the associated sequential numbering, eliminates the need for buffer reordering when out of order segments are received. ([0027])

As per claim 34, Yi et al. discloses the method of claim 33 wherein the sub-blocks are of equal size. ([0030], Figures 5 and 6)

As per claim 35, Yi et al. discloses the method of claim 8 or 28 further comprising, for at least some of the low level data units, forming the low level data unit from a plurality of segments. ([0025], [0029], Figure 4)

As per claim 36, Yi et al. discloses the method of claim 35 wherein each segment in the low level data unit forms the body of a separate block transmitted by the physical layer. ([0029], Figure 4)

As per claim 41, Yi et al. discloses the method of claim 36 wherein each block separately undergoes forward error correction, and forward error correction bits for each block are transmitted in the low level data unit. ([0029] lines 15-20, Figure 4)

As per claim 42, Yi et al. discloses the method of claim 41 wherein the level of forward error correction used is different for different blocks. (Figure 4)

As per claim 43, Yi et al. discloses the method of claim 42 wherein the level of forward error correction used provides greater error correction capability for selected blocks that are being retransmitted after failing to be correctly transmitted in an earlier attempt. ([0031])

As per claim 44, Yi et al. discloses the method of claim 36 wherein most of the blocks are identical in length. ([0027])

As per claim 45, Yi et al. discloses The method of claim 44 wherein the initial and final block of a low level data unit can be of a different length than the remaining blocks. ([0030], Figures 5 and 6)

As per claim 46, Yi et al. discloses the method of claim 35 wherein information common to the plurality of segments forming the low level data unit is transmitted in a header for the low level data unit. ([0029], Figure 4)

As per claim 47, Yi et al. discloses the method of claim 41 wherein the information common to the plurality of segments is transmitted only in the header. ([0029], Figure 4)

As per claim 48, Yi et al. discloses the method of claim 41 wherein the low level data unit further comprises a frame control field. ([0007], Figures 2 and 3)

As per claims 49-56, please see above discussion as they relate to the same subject matter.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 14-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yi et al. (US 2002/0001314) in view of Sprague et al. (US 2003/0231652)

As per claim 14, Yi et al. discloses the method of claim 5. Yi et al. fails to disclose delivery time stamp. Sprague et al. discloses wherein each sub-frame further comprises a delivery time stamp associated with at least some payloads. ([0021]) At the time of invention, it would have been obvious to a person of ordinary skill in the art to use time stamp in the disclosure of Yi et al. The motivation for doing so would have been to identify the selected messages and their sequence for subsequent processing.

As per claim 15, Yi et al. discloses the method of claim 5 wherein clock information characterizing the time setting of a clock in a transmitting station is transmitted to a receiving station within a header of the low level data units. [0027], [0028]) Yi et al. fails to discloses delivery time stamp. Sprague et al. discloses the clock information is used by the receiving station along with the delivery time stamps to establish the time at which payloads are delivered. ([0021]) At the time of invention, it would have been obvious to a person of ordinary skill in the art to use time stamp in the disclosure of Yi et al. The motivation for doing so would have been to identify the selected messages and their sequence for subsequent processing.

As per claim 16, Yi et al. discloses a predetermined time for which payload is to be delivered. ([0028]) Yi et al. fails to disclose a time stamp. Sprague et al. discloses

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wherein the time at which a payload is delivered is set to be substantially the time specified by the time stamp. ([0021]). At the time of invention, it would have been obvious to a person of ordinary skill in the art to use time stamp in the disclosure of Yi et al. The motivation for doing so would have been to identify the selected messages and their sequence for subsequent processing.

Claims 37 is rejected under 35 U.S.C. 103(a) as being unpatentable over Yi et al. (US 2002/0001314) in view of Jiang et al. (US 6,765,885).

As per claim 37, Yi et al. discloses the method of claim 35 and individual segments. Yi et al. fails to disclose encryption. Jiang et al. discloses wherein individual segments are individually encrypted. (Col 3 lines 58-67) At the time of invention, it would have been obvious to a person of ordinary skill in the art to use encryption in the disclosure of Yi et al. The motivation for doing so would have been to allow for security (Col 3 lines 58-67)

Claims 38-40 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yi et al./Jiang et al. further in view of Henson et al. (US 2002/0131591)

As per claim 38, Yi et al./Jiang et al. discloses the method of claim 37. Yi et al./Jiang et al. fails to disclose encryption is carried in a header. Henson et al. discloses wherein encryption information common to a plurality of segments is carried in

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a header. [0108]. At the time of invention, it would have been obvious to a person of ordinary skill in the art to use encryption in a header in the disclosure of Yi et al. The motivation would have been to prevent unauthorized user from accessing body of the message or the segments. ([0108])

As per claims 39 and 40, Yi et al./Jiang et al. discloses the method of claim 37. Yi et al./Jiang et al. fails to discloses wherein encryption information common to a plurality of segments is carried in a header. Henson et al. discloses wherein some encryption information is carried in a header and frame control of the low level data unit and in a header of the block. [0108] At the time of invention, it would have been obvious to a person of ordinary skill in the art to use encryption in a header and frame control in the disclosure of Yi et al. The motivation would have been to prevent unauthorized user from accessing body of the message or the segments. ([0108])

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Liang et al. (US 2003/0231658) discloses robust indication of MAC level error correction. Lee (US 2004/0008728) discloses packet data processing apparatus in packet data communication system. Lee (US 2004/0184481) discloses medium access control protocol layer module of a mobile station in a mobile ad hoc network and method for transmitting/receiving frames of the module. Mangin et al. (US 2005/0122994) discloses methods and devices for transferring and for recovering data


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packets.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Chirag R. Patel whose telephone number is (571)272-7966. The examiner can normally be reached on Monday to Friday from 7:30AM to 4:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Rupal Dharia, can be reached on (571) 272-3880. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


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SUPERVISORY PATENT EXAMINER